

Lightweight, Efficient Power Converters for Advanced Turboelectric Aircraft Propulsion Systems, Phase II

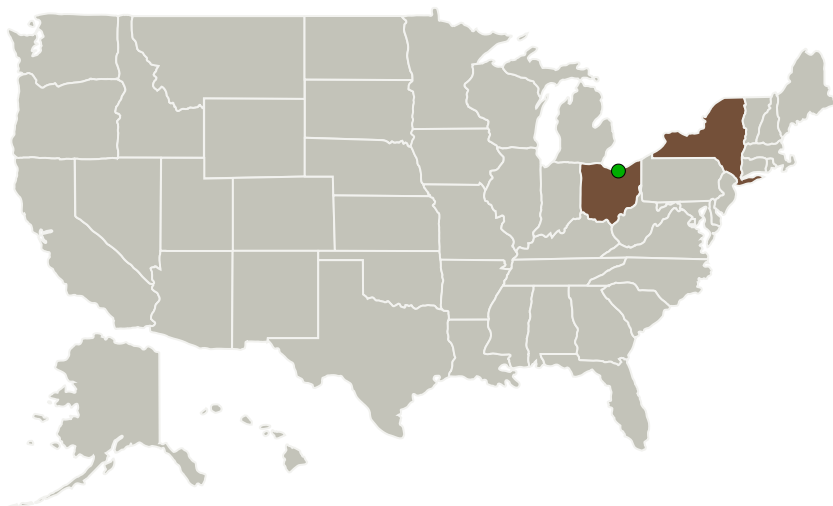
Completed Technology Project (2011 - 2017)



Project Introduction

NASA is investigating advanced turboelectric aircraft propulsion systems that utilize superconducting motors to drive a number of distributed turbofans. Conventional electric motors are too large and heavy to be practical for this application, and so superconducting motors are required. In order to improve maneuverability of the aircraft, variable speed power converters would be required to throttle power to the turbofans. The low operating temperature and the need for lightweight components that place a minimum of additional heat load on the refrigeration system opens the possibility of incorporating extremely efficient cryogenic power conversion technology. This Phase II program will develop critical components required to meet NASA's size, weight, and performance goals.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
MTECH Laboratories, LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	Ballston Spa, New York
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

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Primary U.S. Work Locations

New York

Ohio

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

MTECH Laboratories, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Michael J Hennessy

Co-Investigator:

Michael Hennessy

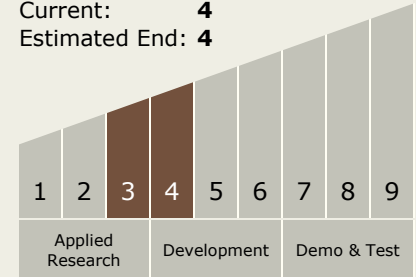
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Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.3 Power Management and Distribution
 - └ TX03.3.3 Electrical Power Conversion and Regulation

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System